

**Allied Paper, Inc./Portage Creek/
Kalamazoo River Superfund Site**

**Supplemental Remedial Investigations/
Feasibility Studies**

**Ecological Risk Assessment
Peer Review
Scope of Work**

Kalamazoo River Study Group

May 2008

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1. Introduction

On February 21, 2007 Georgia-Pacific Corporation and Millennium Holdings, LLC—collectively referred to as the Kalamazoo River Study Group, or KRSG—voluntarily entered into an Administrative Settlement Agreement and Order on Consent (AOC) (Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA] Docket No. V-W-07-C-864) with the U.S. Environmental Protection Agency (USEPA) for the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site (Site or Superfund Site), located in Kalamazoo and Allegan counties in southwest Michigan. This agreement describes a series of activities associated with supplemental remedial investigations and feasibility studies (SRIs/FSs) that will be carried out over the next several years to address potential risks associated with PCBs in seven defined Areas of the Kalamazoo River, including a stretch of Portage Creek from Alcott Street to its confluence with the Kalamazoo River.

As part of the SRI/FS activities, the KRSG and USEPA have agreed to conduct a peer review of KRSG's ecological studies that have been performed to date with respect to floodplain soils. In this document and other documents related to this peer review, the term "floodplain" is used to refer to the areas of formerly impounded sediments (e.g., the extent of inundation prior to the lowering of water levels in the impoundments), and is not necessarily consistent with specific hydrological or zoning definitions of floodplain.

This Ecological Risk Assessment Peer Review Scope of Work for the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site (Peer Review SOW) describes the proposed peer review process including: 1) the management and oversight of the process; 2) considerations regarding the constitution of the Peer Review Panel; 3) a Charge for the Peer Review Panel; and 4) envisioned deliverables and schedule. As indicated in the SRI/FS AOC, the peer review will focus on those studies evaluating exposures to floodplain soils.

The primary goal of the peer review process will be for the selected Peer Review Panel to complete the Charge attached to this document (Attachment 1) and address the quality and relevance of ecological studies conducted by Michigan State University (MSU) researchers as additional lines of evidence in the evaluation of risk and for supporting risk management decisions.

2. Background

In April 2003, Camp, Dresser & McKee (CDM) prepared the *Final (Revised) Baseline Ecological Risk Assessment – Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site* (Baseline ERA; CDM 2003) on behalf of the Michigan Department of Environmental Quality (MDEQ). While CDM was finalizing this Site-wide assessment, the KRSG provided a series of grants to MSU for researchers there to conduct additional ecological studies (the MSU studies). The KRSG has requested that data from the MSU studies be considered as additional lines of evidence for evaluation of ecological risks in the Area-Specific Ecological Risk Assessment process and for subsequent risk management decisions. Information regarding the MSU studies has been provided to USEPA and MDEQ for review and consideration. However, since USEPA and MDEQ were not involved in the design or implementation of these studies, the Statement of Work (SOW; included as Attachment A to the AOC) calls for the MSU studies pertaining to floodplain soils to be subjected to a peer review process designed to assess their quality and utility as additional lines of evidence for informing risk management decisions. The specific charge developed to guide the peer review process is attached.

Depending on the results of the peer review process, the information generated from the MSU studies will be evaluated, along with the information presented in the Baseline ERA (CDM 2003) and other relevant information, as independent lines of evidence in a weight of evidence approach to support the Area-Specific assessments of ecological risks associated with exposure to floodplain soils within formerly impounded areas along the Kalamazoo River.

3. Overview of Peer Review Process

The peer review process described here is based on the USEPA Science Policy Council's January 2006 *Peer Review Handbook* (USEPA 2006). The objective of this review process is to obtain an independent, third-party review of the data currently available for evaluating ecological risk at the Site to confirm that the SRI/FS process and resulting risk management decisions are based on the best available science. The review will be directed by a Peer Review Manager who will direct the activities of an independent Peer Review Panel (Panel).

3.1 Peer Review Manager

The peer review process will be directed by a Peer Review Manager who is an independent individual (i.e., not a member of any of the involved regulatory agencies or associated with the KRSG) with substantial experience working in a multi-stakeholder process and in conducting scientific peer reviews. The KRSG and USEPA identified potential candidates for this position through a variety of sources, including review of the current and past membership of the Ecological Processes and Effects Committee (EPEC) of USEPA's Science Advisory Board, in the interest of finding an individual with extensive prior peer review experience. Based on this process, Dr. Kenneth Dickson, Regents Professor of Biological Sciences at the University of North Texas was selected as the Peer Review Manager. Dr. Dickson was selected by consensus of USEPA and the KRSG based on evaluation of his experience, specific areas of expertise, and availability to meet the necessary schedule.

3.2 Peer Review Panel

A Peer Review Panel consisting of seven individuals will be convened for the purpose of this peer review. Individuals selected as Panel members will have extensive experience in conducting ecological risk assessments under CERCLA at complex sites and developing risk management goals and strategies. In addition, care will be taken to ensure that the areas of expertise of the individual Panel members are sufficiently balanced, broad, and diverse to fairly represent the relevant spectrum of scientific and technical perspectives covered in the Charge. Specifically, the Panel will consist of individuals with extensive, recognized expertise in the following areas:

- Ecological risk assessments and risk management issues at large sites;
- Assessment of potential impacts to avian receptors and communities;
- Application of statistical methods.

Individual members of the Panel will not necessarily be recognized experts in all of these areas; rather the goal will be that the Panel as a whole can provide a rigorous review of the material as it pertains to each of the outlined topics. Preference will be given to candidates with no prior experience on the Kalamazoo River. Prior peer review experience will also be preferred, although not required.

3.2.1 Peer Review Panel Selection Process

An initial pool of candidates will be developed independently by USEPA and KRSG. USEPA recommendations will reflect consideration of candidates put forward by the MDEQ and/or the Natural Resource Trustees. The two initial pools of candidates will be grouped by area of expertise to confirm that the appropriate technical disciplines are adequately represented, and the list will be presented to the Peer Review Manager.

The Peer Review Manager will contact the candidate panel members and assess their willingness and availability to serve on the panel as well as potential conflicts of interest. Once the list of available candidates is assessed, the Peer Review Manager will review those candidates and identify a panel composition that collectively meets the criteria for relevant expertise established by USEPA and KRSG. If necessary at this stage, additional candidates will be put forward by the Peer Review Manager, USEPA, or KRSG such that an adequate panel covering all desired areas of expertise is identified that is free of potential conflicts of interest.

Once USEPA, KRSG, and the Peer Review Manager concur that the Panel achieves the desired mix of technical expertise, the Panel members will be contracted to serve on the panel. The Peer Review Manager will serve as their primary point of contact for all technical aspects of the project.

3.3 Summary of Peer Review Charge

The Charge to the Peer Review Panel is to review the MSU studies with respect to their suitability as lines of evidence for evaluating potential risks to ecological receptors exposed to PCBs in floodplain soils in the formerly impounded areas of the Kalamazoo River and for supporting risk management decisions. A summary of the MSU studies and supporting information will be provided to assist the Panel in their understanding of the material to be reviewed. The Panel must also review the Baseline ERA (CDM 2003) as important supporting information with respect to the terrestrial floodplain exposure pathways. CDM's report provides context for the MSU studies, which were designed to provide additional lines of evidence for

consideration in the final risk management decisions, but CDM's report is not itself a focus of this peer review.

The primary objective of the peer review process is for the Panel to provide an independent, technical opinion regarding the extent to which the information in the MSU studies should be incorporated as independent lines of evidence, along with those presented in the Baseline ERA (CDM 2003), in a weight of evidence evaluation of ecological risks to terrestrial receptor species in formerly impounded areas and for subsequent risk management decisions. In reviewing the materials associated with the MSU studies, the Panel shall weigh the following considerations to address the specific questions outlined in the Charge.

- 1) Are the methods employed in the MSU studies appropriate and consistent with the current state of the science and relevant guidance?
- 2) Have uncertainties associated with the MSU studies been clearly identified and discussed?
- 3) Do the data and analyses presented in the MSU studies constitute reasonable and appropriate lines of evidence to consider in the evaluation of risks to terrestrial receptors in future risk management decisions?
- 4) Do the MSU studies represent reasonable and appropriate lines of evidence for consideration in risk management decisions regarding the formerly impounded areas?

3.4 Consensus Report of the Peer Review Panel

The Peer Review Manager will work with the Peer Review Panel to facilitate the Panel's preparation of a draft Consensus Report summarizing the opinions and recommendations of the Panel. This document is to present the Panel's consensus opinion on each of the specific questions included in the Charge and an overall conclusion as to the use of the studies, data, and analyses as additional lines of evidence in the Area-specific Baseline ERAs and in support of subsequent risk management decisions. The expectation is that consensus can be developed among the Panel for each of the questions that will be posed. However, if consensus can not be reached for a particular question, a minority or dissenting view will be presented in the final report.

The draft report will be distributed to the USEPA and KRSG for review. USEPA may also request that MDEQ and the Natural Resource Trustees review the document. During the review period, a meeting will be held to provide an opportunity for USEPA and KRSG to ask

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questions of the Panel and request clarification on issues identified during the review of the draft report. Following the review period, USEPA and KRSG will submit written questions and requests for clarifications to the Peer Review Manager. The Panel members will review all written and verbal questions received from USEPA and KRSG in the preparation of the Final Consensus Report and may revise the report at their discretion, to the extent they deem necessary and appropriate. The final report will include appendices with the individual responses of each Panel member to the Charge questions, as well as a summary of the meeting discussions.

4. Peer Review Implementation

Once the Peer Review Manager and Panel members have been selected, the peer review process will be carried out as follows:

1. **Preparation of Charge and Distribution of Materials:** A peer review package will be developed that includes this Peer Review SOW, the Charge, the Baseline ERA (CDM 2003), the summary of the MSU studies, scientific journal articles publishing results of the MSU studies, and appropriate supporting information for the MSU studies. This package will be delivered to the Panel for preliminary review. Once the materials have been distributed to the Panel, the individual Panel members are not to have contact regarding related topics with any representatives from KRSG, USEPA, MDEQ, or the Natural Resource Trustees, except at designated forums where all parties are present, until the draft Consensus Report has been prepared. The Panel members will also not discuss the materials amongst themselves until after the independent review period is complete and all individual comments have been submitted to the Peer Review Manager.
2. **Charge Delivery Meeting:** Within two weeks after the information package and Charge have been distributed to the Panel, all Panel members, along with representatives from USEPA and the KRSG will be required to attend a meeting in Kalamazoo or a near-by location. Representatives from MDEQ and the Natural Resource Trustees will also be invited to participate. A part of the meeting will be dedicated to providing the Panel with necessary background information and a summary of the charge. Representatives of USEPA and the KRSG will give an overview presentation of the Charge and the supporting documentation provided in the information package. A representative of MDEQ will present a summary of the Site-Wide Baseline ERA (CDM 2003) and Dr. John Giesy will provide an overview of the ecological studies conducted at MSU on behalf of the KRSG. MDEQ and/or the Natural Resource Trustees, or other representatives of KRSG may also speak to the peer review panel. The remainder of the meeting will be dedicated to a Site visit to observe the former impoundment areas along the Kalamazoo River. The Panel members will participate in a one-day tour of the Site led jointly by representatives of KRSG and USEPA. Throughout this meeting and Site visit, Panel members will have the opportunity to ask questions and seek clarifications regarding each of the studies, reports, or publications included in the package. The Peer Review Manager will facilitate the meeting.

3. **Independent Review:** Following the Charge delivery meeting, the Panel will review the materials provided and prepare individual responses to the specific questions outlined in the Charge. As previously stated, the Panel members are to have no contact regarding topics associated with this peer review with representatives from the KRSG, USEPA, MDEQ, or the Natural Resource Trustees or with each other during this period to ensure that each individual provides an independent, unbiased opinion. The Peer Review Manager will serve as the point of contact for all questions or concerns raised by individual Panel members.
4. **Panel Discussion and Preparation of Draft Consensus Report:** Once all individual responses have been submitted, the Peer Review Manager will convene one or more meetings (via conference call) to discuss the issues and help the Panel begin to formulate consensus opinions. Based on these discussions, the Manager will assign the task of preparing one or more consensus opinions to each Panel member. The Peer Review Manager will facilitate this process as necessary. As they are completed, the Peer Review Manager will compile all consensus and any minority opinions into a draft Consensus Report for the Panel's review. The Manager will work with the Panel to ensure that the Consensus Report accurately reflects the views of the Panel and provides clear and succinct responses to each of the questions presented in the Charge. Upon completion of the Draft Report, ARCADIS will provide administrative support to the Peer Review Manager related to distribution of the draft. Throughout this process, members will continue to refrain from contact with the KRSG, USEPA, MDEQ or the Natural Resource Trustees.
5. **Review Period:** Upon completion of the draft Consensus Report, USEPA and KRSG will have approximately 30 days to review the document and submit questions and requests for clarifications. USEPA may also ask MDEQ and the Natural Resource Trustees to review the draft document. Within 30 days after the draft document is distributed, a meeting will be held in the general vicinity of the Kalamazoo River, where the Panel will present the results of the Consensus Report. This meeting will allow USEPA and KRSG to ask questions and seek clarifications from the Peer Review Panel. A detailed summary of the discussion will be prepared for inclusion in the Final Consensus Report.
6. Following this meeting, the KRSG and USEPA will provide a summary of all questions and requests for clarifications on the draft Consensus Report to the Peer Review Manager for consideration by the Panel. USEPA will include any questions received from MDEQ or the Natural Resource Trustees, as appropriate.

7. Final Consensus Report: The Peer Review Panel will review all written and verbal questions and requests for clarification received from USEPA and KRSG on the draft Consensus Report in the preparation of the Final Consensus Report and may revise the document to the extent they deem necessary and appropriate. The Peer Review Manager will work with the Panel to facilitate and manage this process, ensuring that schedules are met and that the Final Report reflects input from all Panel Members. Once the Panel is satisfied that the opinions presented are complete, the Peer Review Manager will produce and distribute the Final Report. The Manager will ensure that the Final Report includes: 1) an appendix containing the detailed summary of the presentation meeting and 2) an appendix containing the individual responses of each peer review member to the questions in the Charge. ARCADIS will provide administrative support to the Peer Review Manager related to distribution of the document.

5. Peer Review Schedule

A draft schedule for the peer review process is presented in Table 1. The actual timing and sequence of events will be influenced by many factors including, but not limited to, the time required to select the Peer Review Panel and to develop a mutually agreeable specific Charge for the Panel, and the availability of the selected Panelists to complete the peer review. It is assumed, however, that the peer review could be completed within one year of agreement to and acceptance of the peer review process described in this document.

Table 1 - Projected Peer Review Schedule

Milestone or Activity	Timing of Activity	Target Date
Submit Draft Summary of MSU Studies and Revised Charge for USEPA Review	—	March 2008
Finalize Peer Review Panel and complete arrangements with the panel	—	March 2008
Finalize Summary of MSU Studies and Supporting Information for Panel	Within 45 days following submittal of initial draft of MSU Studies to USEPA	April 2008
USEPA Approval of Final Peer Review SOW and Charge	Within 10 days following review/approval of MSU summary	Early May 2008
Preparation of Charge Delivery Package and distribution to the Panel	Within 10 days following approval of the Peer Review SOW and Charge	Early May 2008
Presentation of the Charge and MSU Studies Overview to the Panel and site visit	Within 14 days following distribution of peer review materials	May 13-14 2008
Panel Members conduct independent review and deliver consensus and minority opinions to Peer Review Manager	Within 60 days following presentation of the Charge	May-July 2008
Delivery to USEPA and KRSG of Draft Consensus Report by Peer Review Manager	Within 30 days following receipt of the consensus and minority opinions	September 2008
Meeting for Panel to present findings and USEPA and KRSG to seek clarification or ask questions about the Consensus Report	Within 30 days after distribution of draft Consensus Report	October 2008
USEPA and KRSG submit questions on Draft Consensus Report to Peer Review Manager	Within 60 days following distribution of draft Consensus Report	November 2008
Delivery of Final Consensus Report and release of panel	Within 45 days following USEPA and KRSG questions on the draft	January 2009

6. References

CDM. 2003. Final (Revised) Baseline Ecological Risk Assessment – Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site. Prepared on behalf of the MDEQ Remediation and Redevelopment Division. April 2003.

USEPA. 2006. Peer Review Handbook, Third Edition. Science Policy Council, U.S. Environmental Protection Agency, Washington, D.C. EPA/100/B-06/002.

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Attachment